

A PIG NEMATODE, *GNATHOSTOMA*
HISPIDUM, FEDCHENKO, AS A HUMAN
PARASITE

BY

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Recently Dr. M. Kinoshita, of the Surgical Clinic of the Tokyo Imperial University, brought to me for identification a small piece of fresh human cutaneous tissue containing a parasite. Unfortunately, the nematode, which I was able to remove easily from the tissue, had been mutilated, apparently during the operation. There still remain, however, enough points of systematic importance to enable me to identify it with certainty as *Gnathostoma hispidum*. At least four cases of *Gnathostoma* in man have hitherto been reported, but they are all referred to *Gnathostoma spinigerum*, Owen. This paper presents, therefore, the first case of *Gnathostoma hispidum* in man.

Gnathostoma hispidum is a parasite generally found lodged in the stomach of wild and domesticated pigs, and has been found only once in the fat layer of a cow, in Berlin. In Japan, excluding Formosa, there have come to my knowledge only five cases of the occurrence of this species in the stomach of the domesticated pig, and this is the only species of *Gnathostoma* hitherto found in this

country. The new case reported here is of especial interest, not only because it concerns *Gnathostoma hispidum* as a human parasite, but also on account of its pathogenic properties.

PATHOGENICITY

The patient is a male Japanese, 43 years old, who has lived long in Tokyo. On the evening of May 12th, 1923, he suddenly felt a slight pain on the left thenar eminence. He found a linear swelling of about 1 cm. there, and its length increased during the same and the following days to about 5 cm., with continued pain. On the third day the length of the swelling was about 8 cm. The patient then consulted Dr. Kinoshita, who recognised typical clinical features of the creeping disease, *Dermatitis linearis migrans*, in the affected part, and at the end of the progressive linear swelling, a small black object through the skin. On the same day Dr. Kinoshita excised the affected region to the length of about 2 cm., including the black object, and quickly brought it to me. This black object proved itself to be the intestine of the parasite, containing blood probably derived from the host. After the operation the symptoms disappeared. The worm was, therefore, the cause of the creeping disease.

DESCRIPTION OF THE WORM

The worm is a young female. The head and anterior body wall are lacking. The posterior part of the body is cylindrical, tapering very gradually posteriorly to the abruptly rounded end. From the anterior end of the oesophagus to the posterior end of the body is about 5 cm., and the broadest part of the portions of the body which remain measures 0.51 mm. There are many fine transverse striations and small annulations on the cuticle, at intervals of 22μ to 33μ . Small spines cover the whole body. The rows of the spines do not always agree with the annulations of the cuticle, as in the anterior part the intervals between the spine rows are 7μ to 10μ . The spines are simple and directed posteriorly. In the anterior region

they measure 6μ to 7μ long by 2.4μ to 3.6μ broad at the base and become smaller posteriorly, measuring in the hindmost part only 3.6μ long by 2.4μ broad at the base, although large ones may occur at times.

The rows of spines are generally close together anteriorly and more separated posteriorly, and the spines of the same row are correspondingly more separated posteriorly, until finally they no longer form rows but are scattered irregularly and appear as dots. Ventrally the spines extend to about 74μ from the posterior end, and dorsally more close to the latter. The lateral lines are apparent, and the somatic muscle cells are spindle- or tadpole-shaped.

The one cervical sac which has fortunately been left is cylindrical, measures 0.4 mm. long by 50μ broad in the distal region, and is slightly constricted at 0.125 mm. from the distal end. A narrow duct is seen running through the entire sac.

The oesophagus is thick and club-shaped, measuring about 1.2 mm. in length; its maximum breadth, which lies in the posterior region, is 0.027 mm. Its lumen is lined by a triradiate cuticular wall. The intestine is of about equal breadth throughout, and only narrows slightly in the most posterior part. Its breadth is 0.135 mm. at the commencement, 0.22 mm. at the broadest point lying before the middle, and 0.115 mm. in the posterior end. The wall of the intestine consists of pentagonal or hexagonal epithelial cells. The rectum is conical and about 0.15 mm. long. The anus lies at the distance of 0.08 mm. from the posterior end of the body. Owing to shrinkage, the tail is seen as a conical process. As to the genital organs I have nothing to note.

The foregoing is all that I have been able to ascertain in my specimen. Although it is incomplete, the presence of cervical sacs and the mode of arrangement of the body spines conclusively prove it to be *Gnathostoma hispidum*.

I have still two other cases to note, which also refer to *Gnathostoma* in man. Both are from China. With the four generally known ones we can, therefore, count seven indubitable cases of *Gnathostoma* in man, and all are restricted to Eastern Asia, *i.e.*, Siam, Malay States, China and Japan. The cases from China will be reported on in another place.

CONCLUSIONS

1. A nematode newly recovered from man in Japan is *Gnathostoma hispidum*, Fedchenko.
2. This is the first recorded case in which this species occurs as a human parasite.
3. The worm caused a typical creeping disease.

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